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Compact
Four Shaft
Table Loom

by

Franklin H. Gottshall

1944

COMPACT

Table Loom

PRODUCES ATTRACTIVE PATTERNED FABRICS

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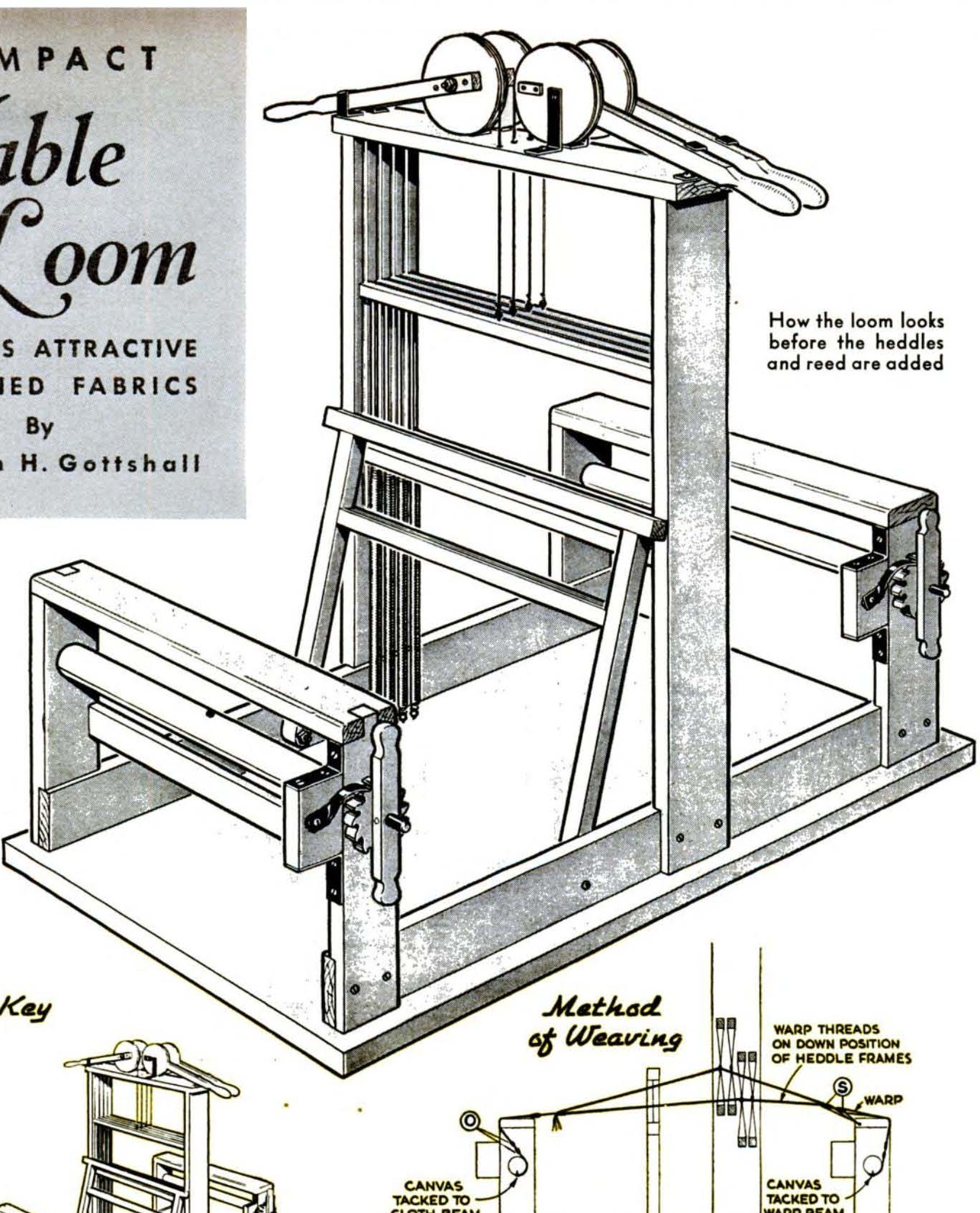
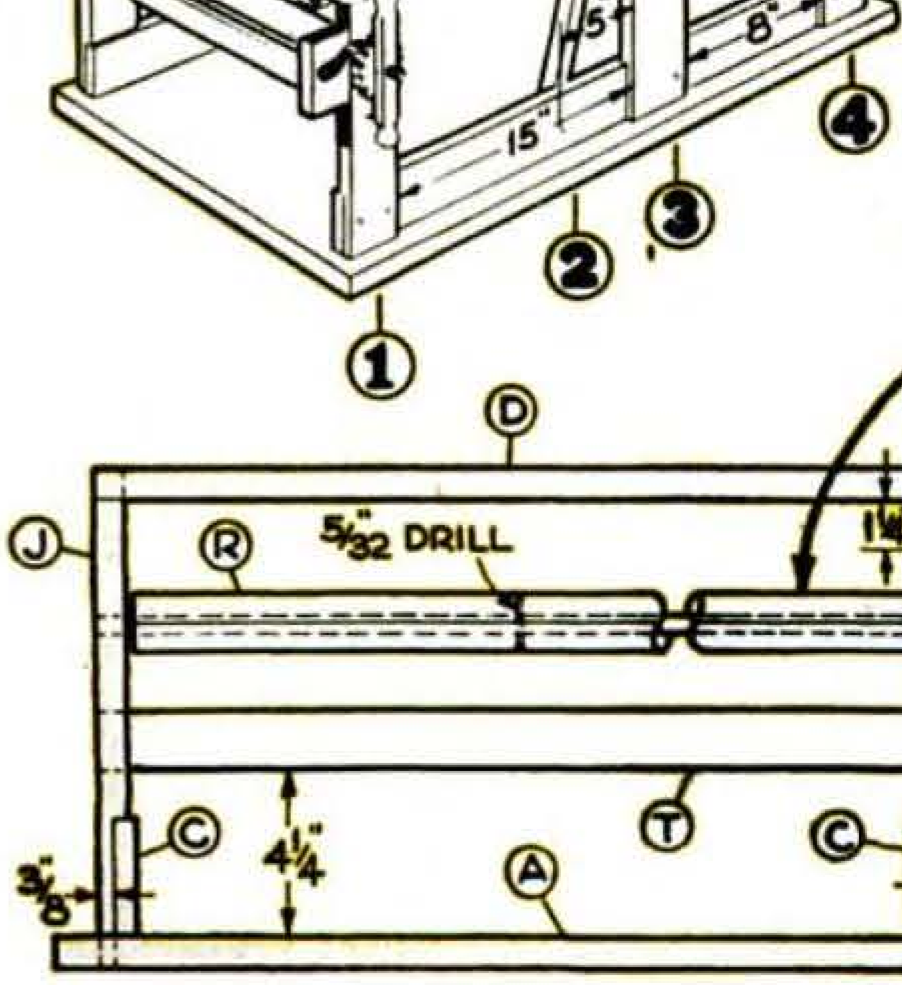
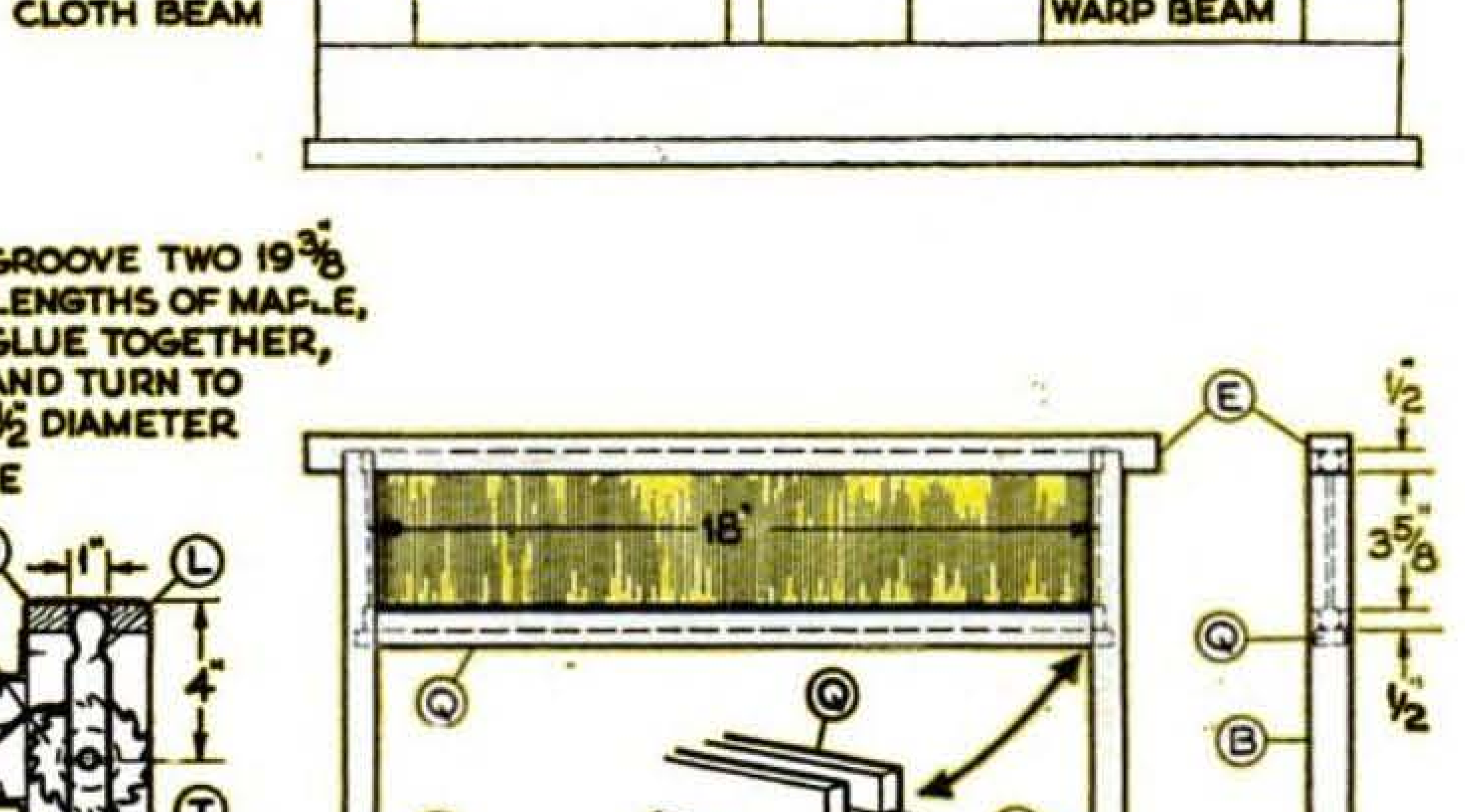


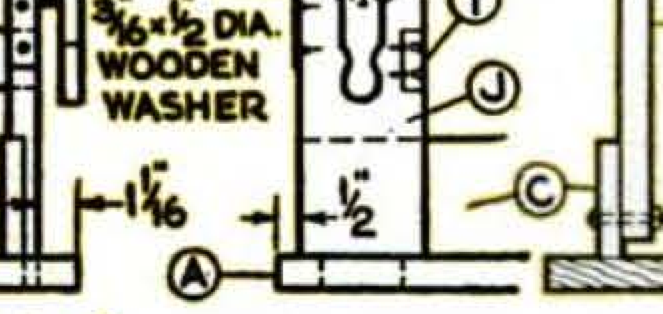
How the loom looks before the heddles and reed are added

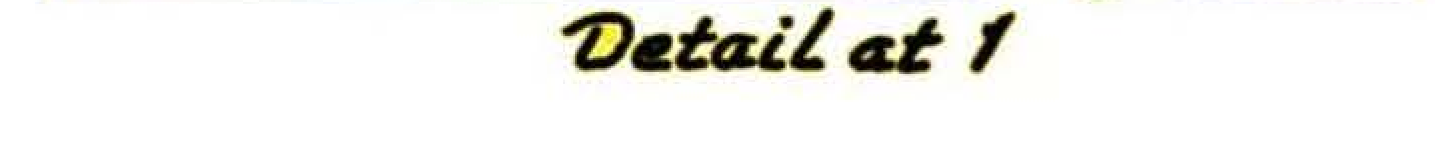
Key



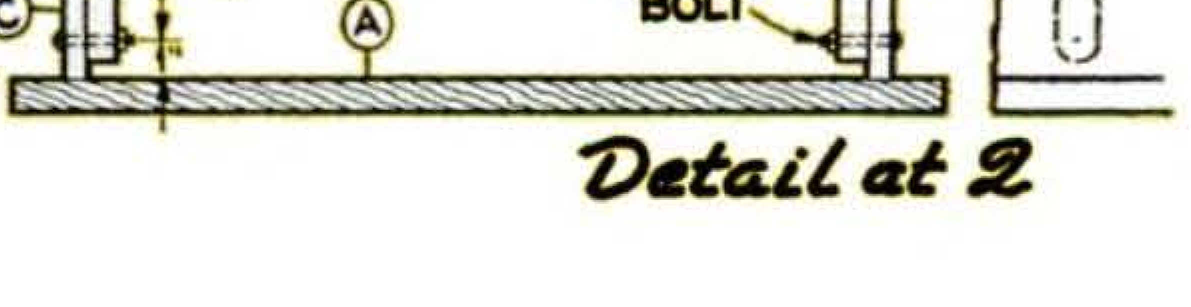
Method of Weaving


WARP THREADS ON DOWN POSITION OF HEDDLE FRAMES
S
WARP
O
CANVAS TACKED TO CLOTH BEAM
CANVAS TACKED TO WARP BEAM


1 3/4"
1 3/4"
GROOVE TWO 19 3/8 LENGTHS OF MAPLE, GLUE TOGETHER, AND TURN TO 1 1/2 DIAMETER
1/2 SQUARE



Detail at 1



Detail at 2

It's Easy to Learn How to Weave on This Simplified Loom

A PROJECT that will serve as an introduction to the ancient art of weaving, this hand loom is both entirely practical and compact enough to fit on a small table. Many attractive things—scarves, neckties, handbags, table runners, even blankets—can be made from the beautiful patterned fabrics it weaves. The cloth produced is up to 18" wide, while finished products requiring wider material may be made from panels stitched together. Though slower than a treadle loom, it is less bulky and simpler to build.

A brief consideration of weaving principles may perhaps make the construction clearer. Space will not permit discussion of how to weave, but there are many books on this subject. A glossary of common loom parts and weaving terms will be found on a subsequent page.

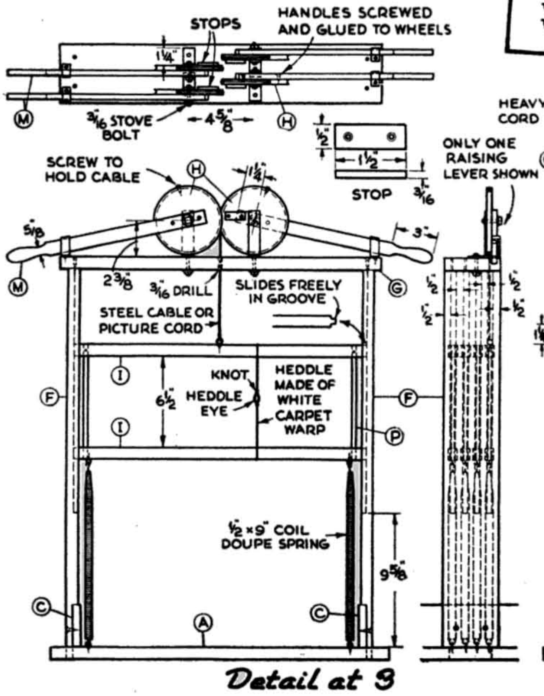
Basically, a loom is a machine for separating certain groups of warp or lengthwise threads so that a shuttle may carry the weft or traverse threads through. The shed, a triangular passageway between groups of warp threads, is obtained by pulling down one or more of the levers (*M*) at the top of the loom. This raises the heddle frame (*I* and *P*), an open rectangular framework on which is placed a series of looped cords or heddles, knotted so that a small eye occurs in the center of each. Since every warp thread passes through a heddle eye, it follows that when a heddle frame is raised, it also carries upward only the warp threads which pass through the heddle eyes on that particular frame.

The pattern is determined partly by the manner in which the warp threads are grouped on the heddle frames, partly by the

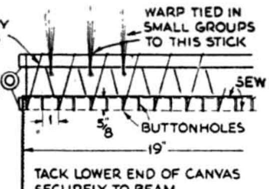
LIST OF MATERIALS

No. Pc.	T	W	L	For
1	⅞	23	34	A
2	11/16	1	15½	B
2	½	3	33	C
2	¾	3	20⅞	D
1	1	1	21	E
2	¾	4	28	F
1	⅞	4	22	G
4	5/16	4¾ diameter		H
8	⅝	¾	20⅛	I
2	¾	3	12⅞	J
2	¾	3	12⅛	J-2
2	½	3 diameter		K
2	½	1	8	L
4	½	1	14	M
2	¾	2	3	N
2	3/16	½	19	O
8	¼ (dowel)		8	P
1	¾	1	18¼	Q
4	⅞	1¾	19⅜	R, R-2
2	⅛	¾	20	S
1	½	1½	20⅞	T

NOTE: All dimensions are given in inches. MISCELLANEOUS: 12 angle irons; 2 pawls; 2 iron rods, ½" dia. by 23"; 8 ½" by 9" doupe springs; 4 stove bolts, 3/16" by 1¼"; 2 stove bolts, ¼" by 1¾"; 18" 10-oz. canvas duck, 38" wide; picture wire; 4 screw eyes; washers; wood screws.



Detail at 3


HEAVY CORD
WARP TIED IN SMALL GROUPS TO THIS STICK
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SEW
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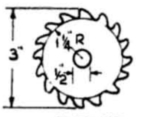
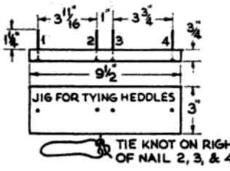
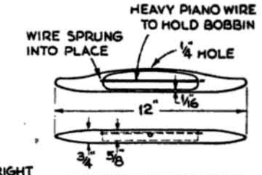
5/8
BUTTONHOLES
19"
TACK LOWER END OF CANVAS SECURELY TO BEAM



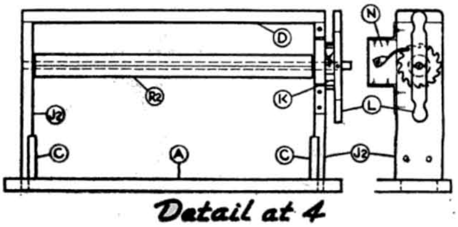
RATCHET



JIG FOR TYING HEDDLES



SWEDISH TYPE SHUTTLE



Detail at 4

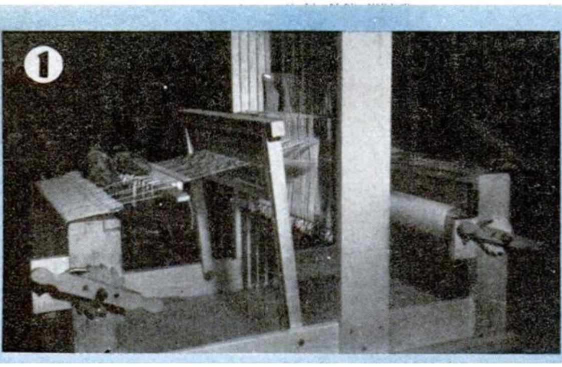
sequence in which the levers are raised and lowered during weaving, and partly by the color of the weft threads used in the shuttles. The number of shuttles needed is determined by the number of colors to be woven into the cloth.

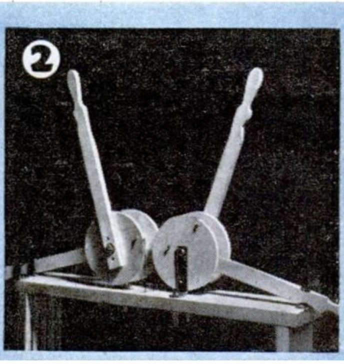
As the shuttles carry the weft threads through the shed, they are packed into the cloth as tightly as desired by the beater, (*B, Q,* and *E*). This consists of a pivoted frame which carries the reed, a series of parallel steel wires mounted in their own frame. Rather than to attempt to construct a reed, you will find it simpler and more satisfactory to purchase one or more commercial ones.

In weaving terminology, the dent of a reed is the number of wires per inch; a 17-dent reed has 17 wires per inch. If you wish to weave a variety of patterns, it is desirable to have several reeds. A 17-dent reed and a 24-dent reed will do for a starter. When quite fine warp threads are used, it is possible to pass two through each dent of a 17-dent reed, thus giving 34 threads to the inch. The 24-dent reed, on the other hand, will permit use of medium-weight warp, while the 17-dent reed, threaded normally, will take fairly coarse yarn.

Heddles, made of cotton carpet warp, are first waxed (beeswax is best, though paraffin can be used) and then tied with the aid of a jig. This is made by driving four tenpenny nails through properly spaced holes drilled in a board, and then cutting their points off. Since every heddle should be exactly alike, the nails must be perpendicular to the board and not too long, as otherwise they might bend when the heddles are tied. About 1,000 heddles will be needed, 250 for each heddle frame. Tie them on the jig in groups of 25 and bind them with string until they are stripped on a heddle frame.

The loom consists of four main parts: the cloth beam, with its supporting and arresting parts (designated *1* in one drawing);



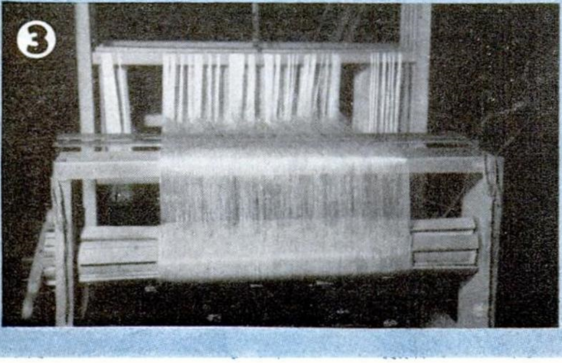


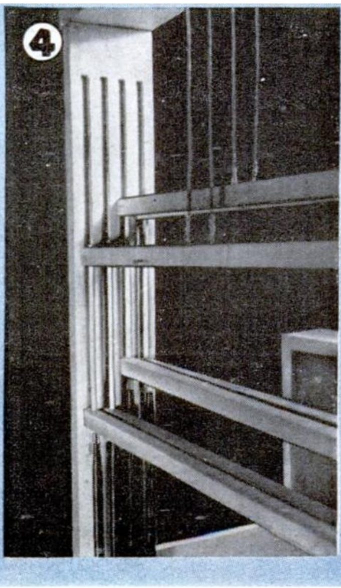
1 Here the loom has been threaded up, and a short length of finished cloth is visible at the left of the beater

2 When one of the levers is raised, the pulley to which it is attached lowers one of the heddle frames beneath

3 Some flat sticks or battens on the warp beam help keep the warp even, while other sticks are tied to the rail

4 The slots that the tongues of the heddle frames run in can be extended all the way up to the top if you prefer





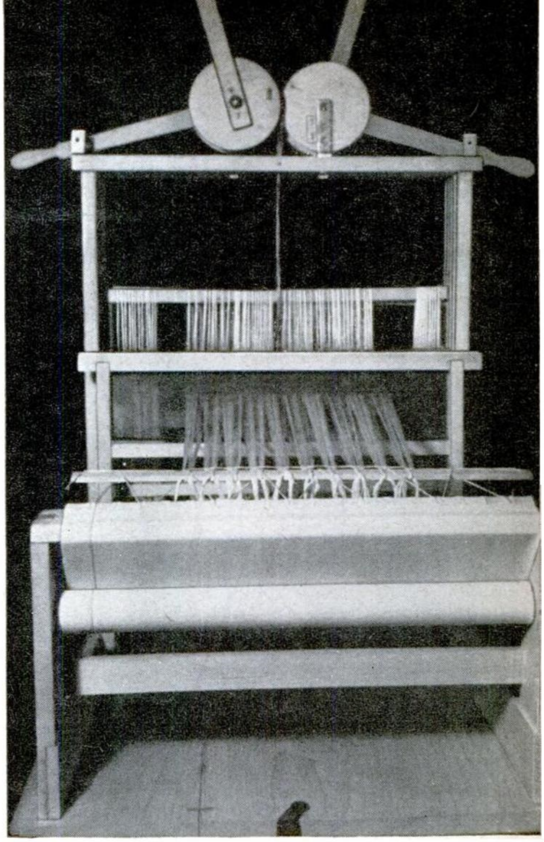
the beater (*2*); the harness, which includes heddle frames, doupe springs, and the elevating mechanism (*3*); and the warp beam, with its supporting and arresting parts (*4*). Although the construction is indicated in the drawings and the dimensions are given in the list of materials, certain particulars merit consideration.

Use hard maple or similar wood in making the loom. Glue up a piece 23″ by 34″ for the base and into this cut six mortises for the uprights. Note that the warp beam and the cloth beam are mounted in almost exactly similar supports; the only differences are that the warp beam does not need the extra bracing rail, and that the rail on top is attached by screws rather than by mortise and tenon joints.

A good way to make the beams (*R* and *R-2*) is to groove two pieces of maple to take the iron rod (*Y*), glue them together, and turn to 1½″ diameter. Then drill two 5/32″ holes in the rod for the steel pins or nails which anchor the beam and tension lever to the rod.

A length of canvas should be tacked securely to the cloth beam. Two sticks (*O*) and a cord lacing provide a means to attach the warp threads. When the warp is placed on its beam, a series of sticks is also laid on, as shown in one photograph, in order to provide an even, regulated tension on each warp thread. Two other sticks are shown in the same photo and at *S* in a drawing; they are also helpful in feeding the warp properly.

The beater consists of two stiles and two rails for holding the reed. Since it will frequently be necessary to change reeds, do not glue these parts together. Make certain that the heddle frames slide smoothly in their grooves. The tongues on the ends of the heddle sticks (*I*) must be trimmed to permit this, and the dowels (*P*) must be of an identical length and perfectly straight.



This view shows the loom from the cloth-beam end. The warp is in place and ready to weave

Cut and bind the picture wire for the cables so that when the levers are down, each heddle frame is raised to exactly the same height. Attach a small stop to each pulley to keep the cable taut when a lever is raised. The metal brackets which support these pulleys should be just loose enough to permit the lever to be swung away from its latch when a frame is to be lowered.

GLOSSARY OF LOOM AND WEAVING TERMS

Beater—*The batten or frame, holding the reed, for driving the weft into the cloth.*

Dent—*One of the fine wires composing the reed between which warp threads pass; also, the space between two such wires.*

Doupe Spring—*The spring used to return a raised heddle frame to position.*

Harness—*The part of the loom which includes the heddles, heddle frames, and the mechanism for raising and lowering them.*

Heddle—*One of a series of parallel doubled cords, tied with a small eye or loop in the center, through which a warp thread passes.*

Heddle Frame—*One of the open rectangular frames on which the heddles are located.*

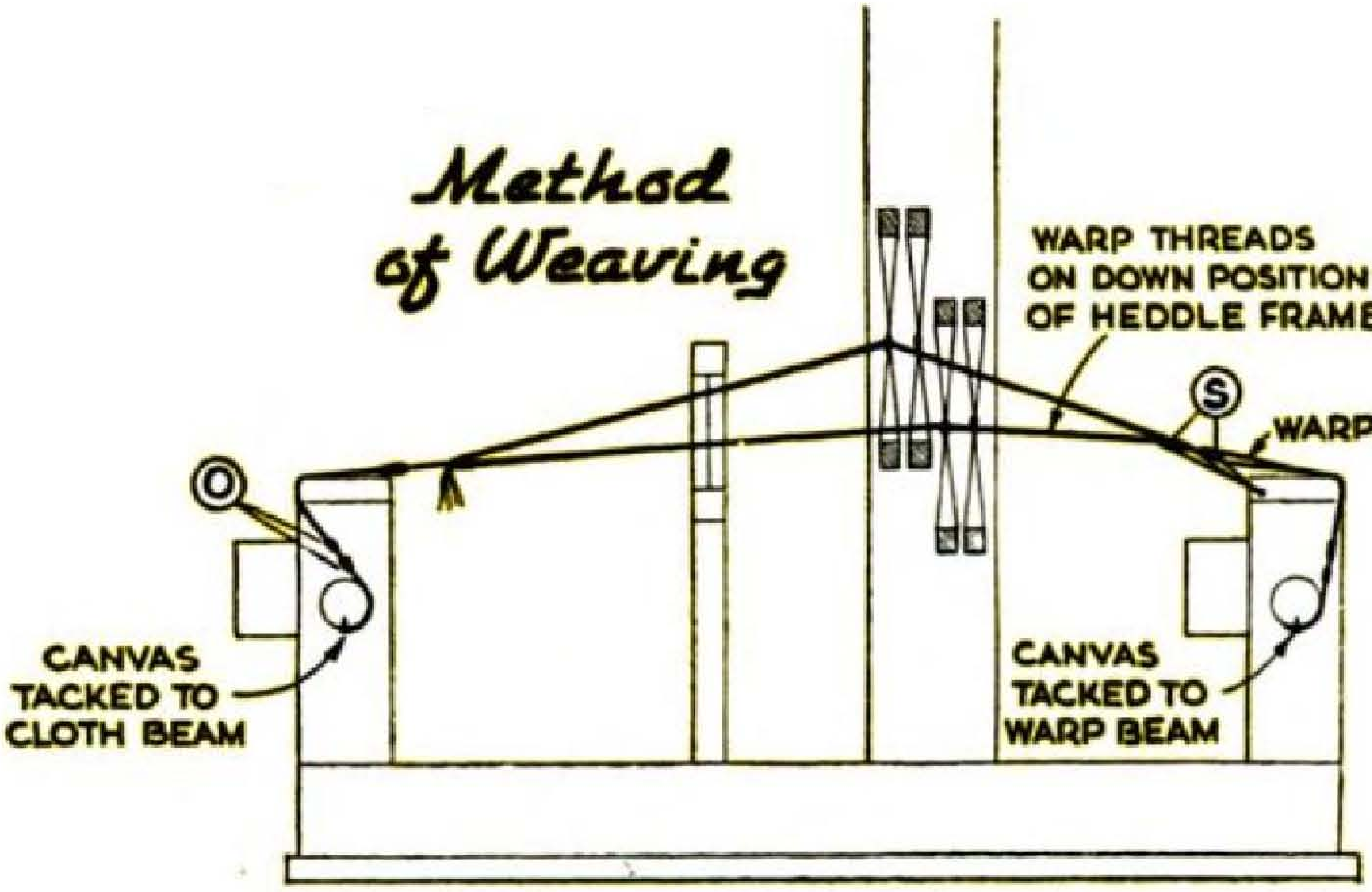
Reed—*A series of parallel fine wires mounted in a frame and held in the beater for driving the weft into the cloth.*

Shed—*The triangular passageway between groups of warp threads through which the shuttle passes.*

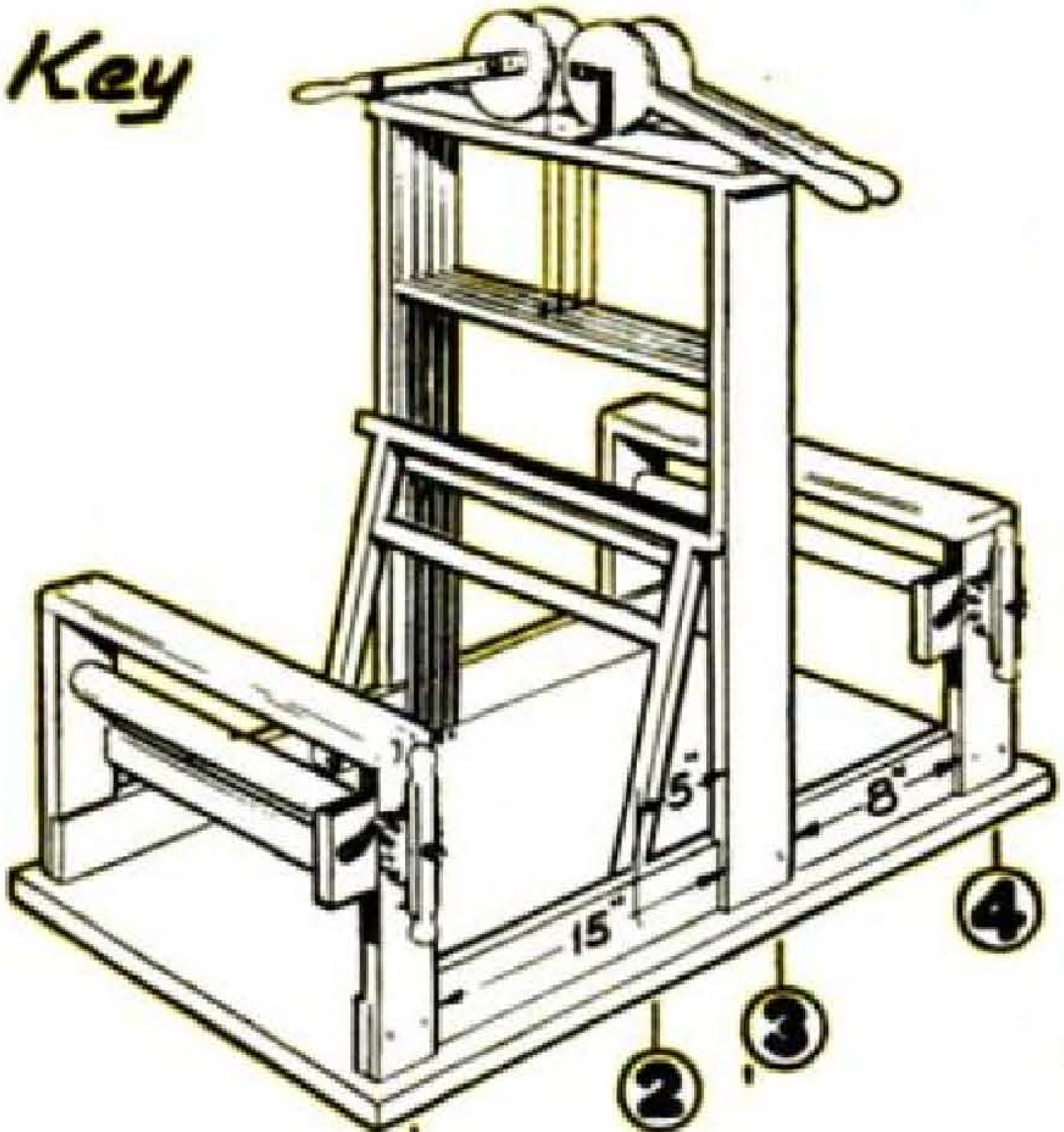
Warp—*Threads which run longitudinally in the loom and in the cloth woven.*

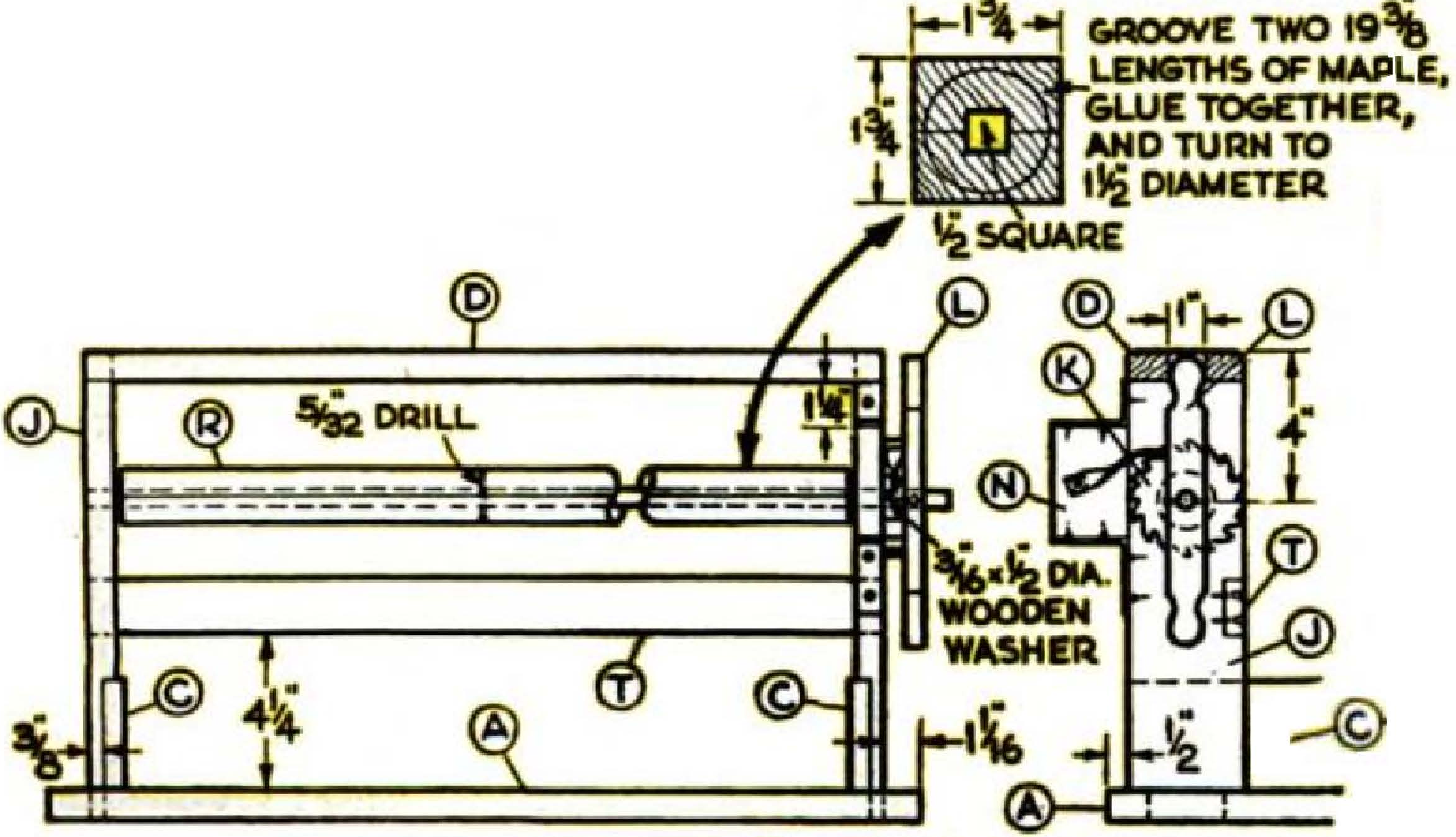
Weft—*Threads which run transversely in the loom and cloth, woven in with the shuttle. Sometimes called woof.*

Method of Weaving

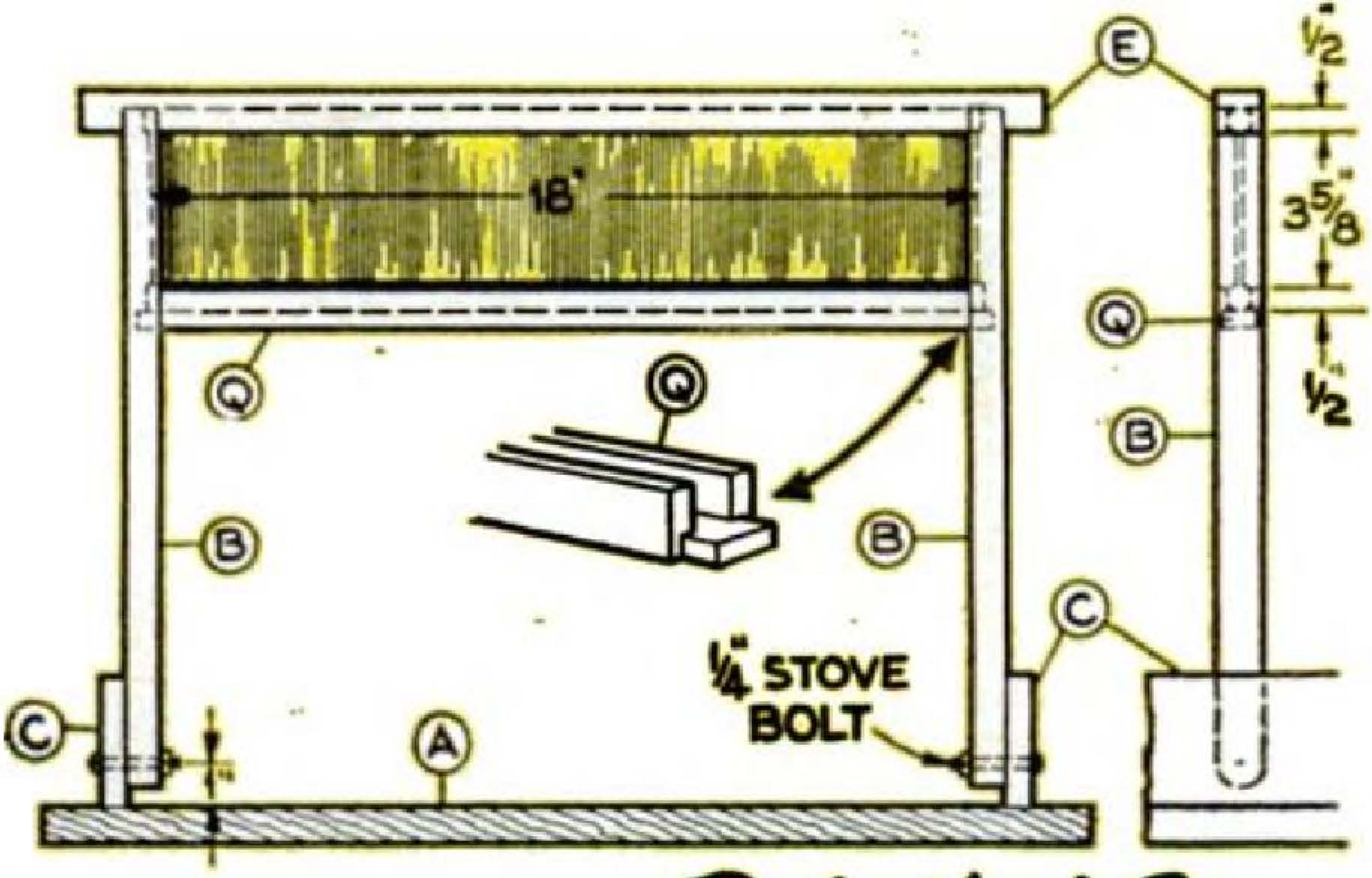

WARP THREADS ON DOWN POSITION OF HEDDLE FRAMES
Ⓢ
WARP
Ⓞ
CANVAS TACKED TO CLOTH BEAM
CANVAS TACKED TO WARP BEAM

Key

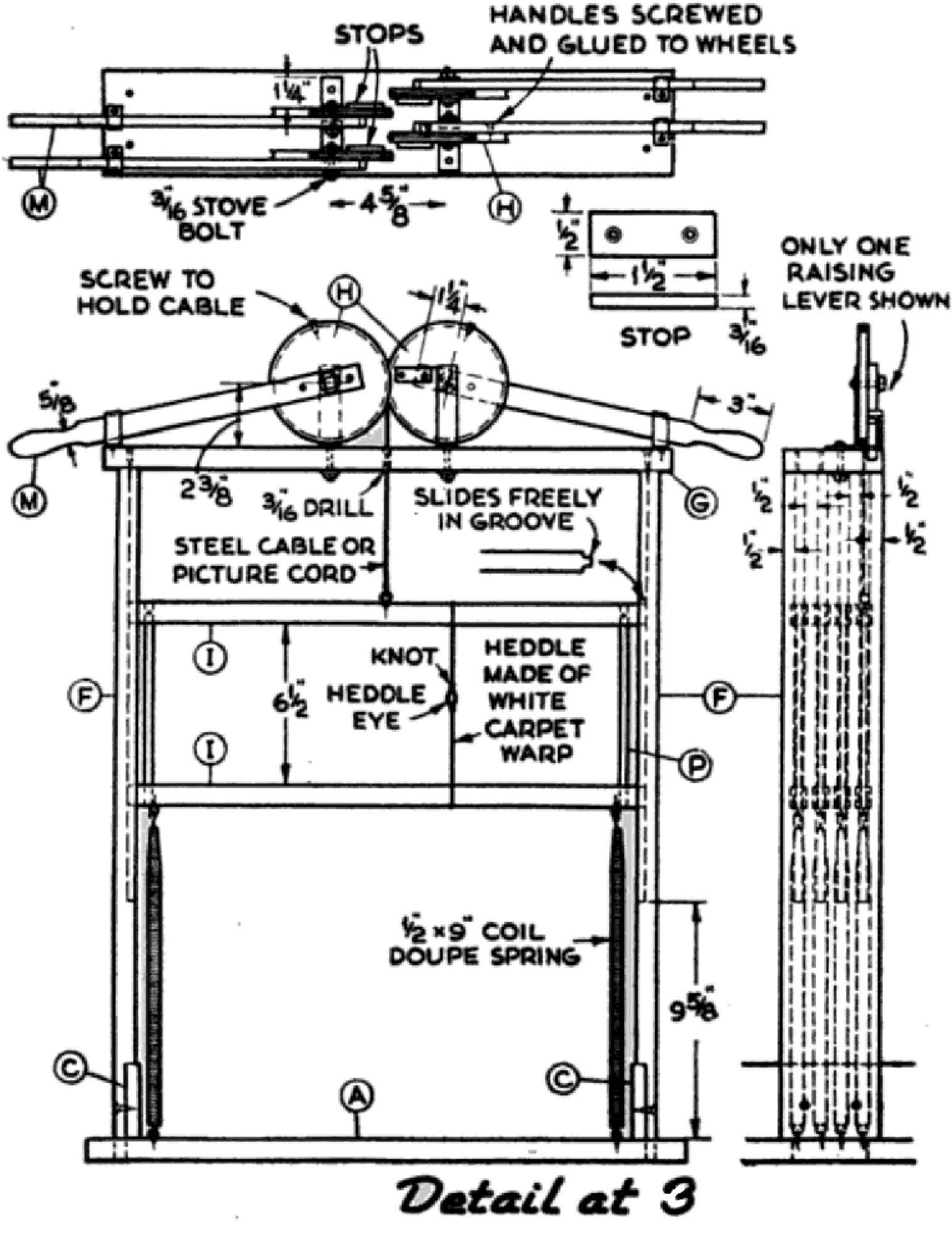



1¾"
1¾"
GROOVE TWO 19⅜" LENGTHS OF MAPLE, GLUE TOGETHER, AND TURN TO 1½" DIAMETER
½" SQUARE
D
L
D
1"
L
J
R
5/32" DRILL
1¼"
K
4"
N
3/16" x ½" DIA. WOODEN WASHER
T
J
C
4¼"
T
C
C
⅜"
A
1 1/16"
½"
A

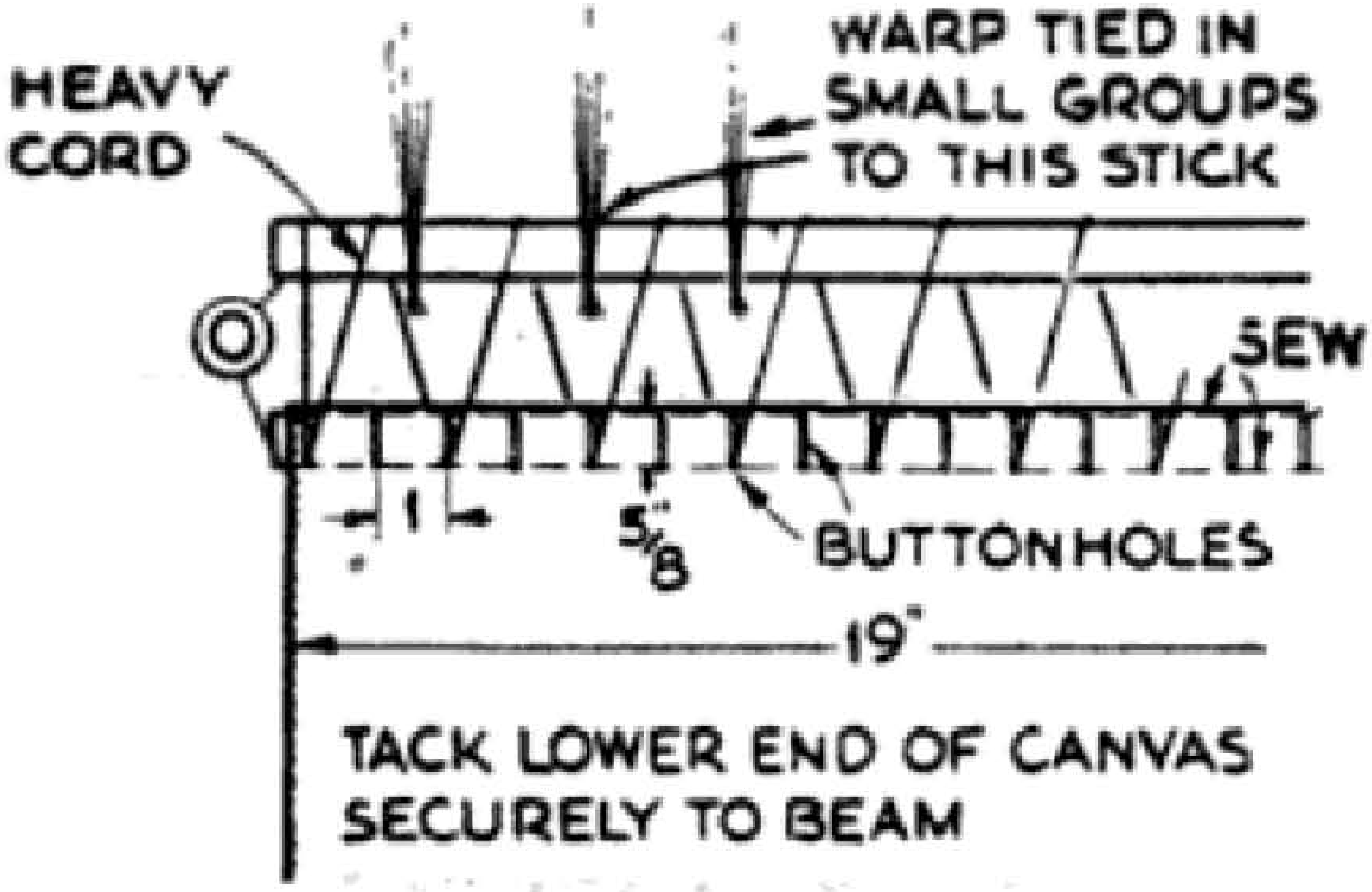
Detail at 1



Detail at 2


HANDLES SCREWED AND GLUED TO WHEELS
STOPS
1¼"
M
3/16 STOVE BOLT
4 5/8"
H
1/2"
1½"
3/16
STOP
ONLY ONE RAISING LEVER SHOWN
SCREW TO HOLD CABLE
H
1¼"
5/8"
3"
M
2 3/8"
3/16" DRILL
SLIDES FREELY IN GROOVE
G
STEEL CABLE OR PICTURE CORD
½"
½"
½"
½"
I
KNOT
HEDDLE EYE
HEDDLE MADE OF WHITE CARPET WARP
6½"
I
F
F
P
½" × 9" COIL DOUPE SPRING
9 5/8"
C
C
A

Detail at 3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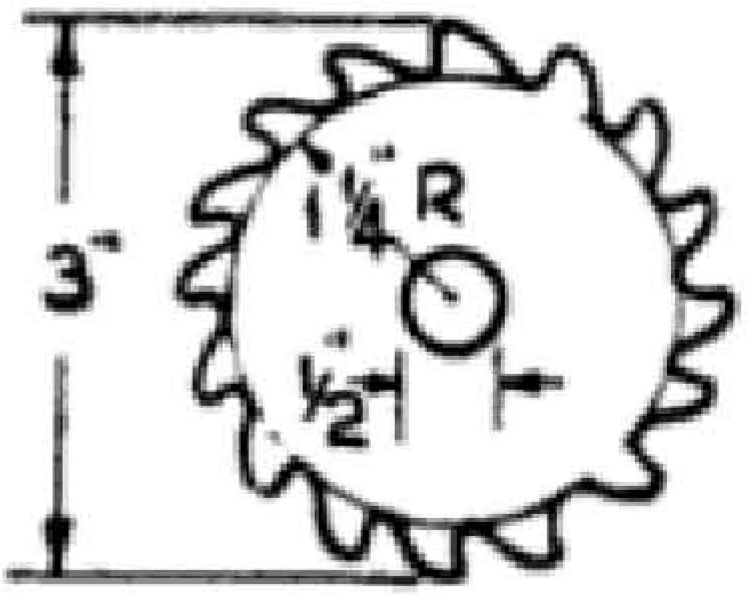

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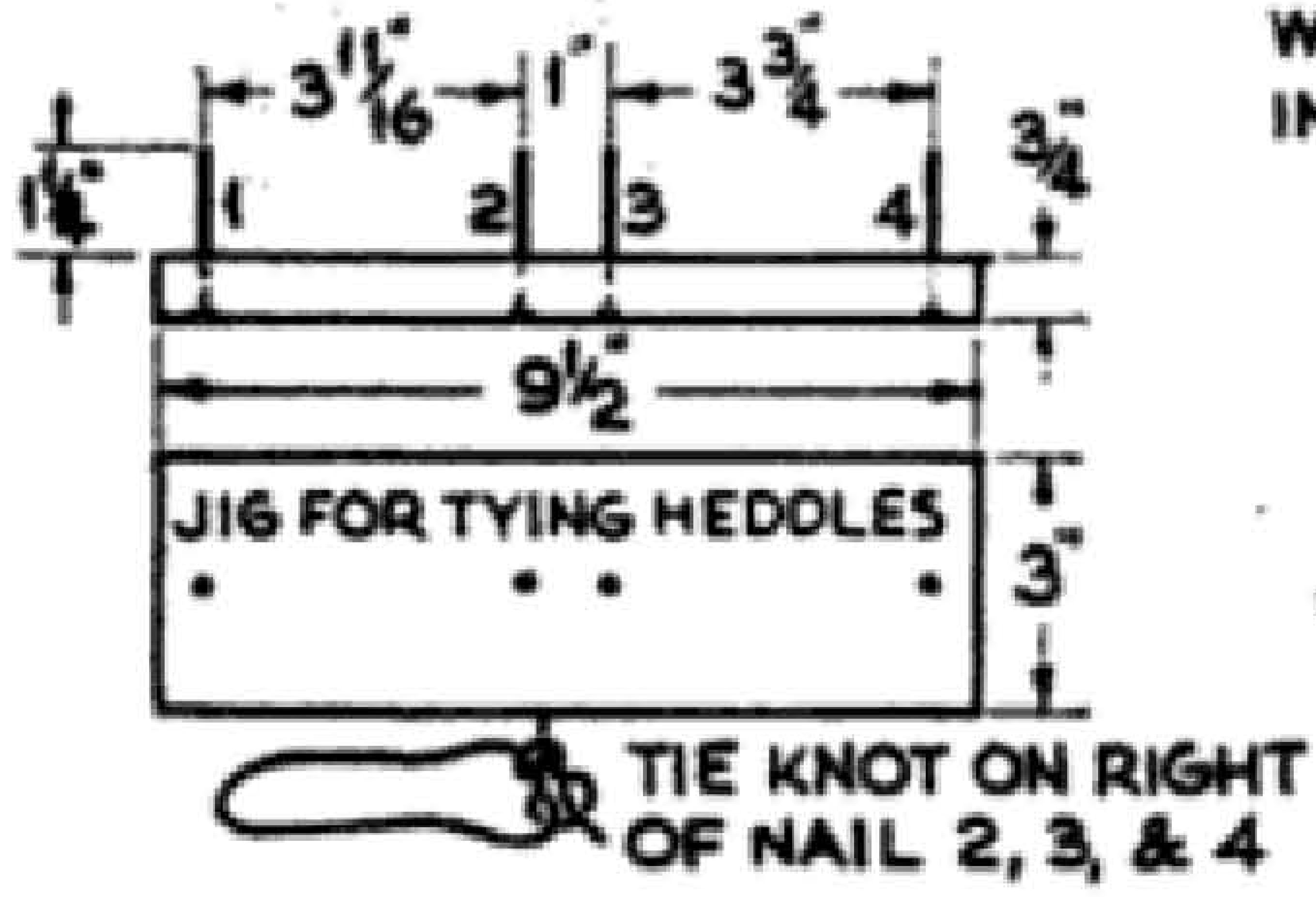
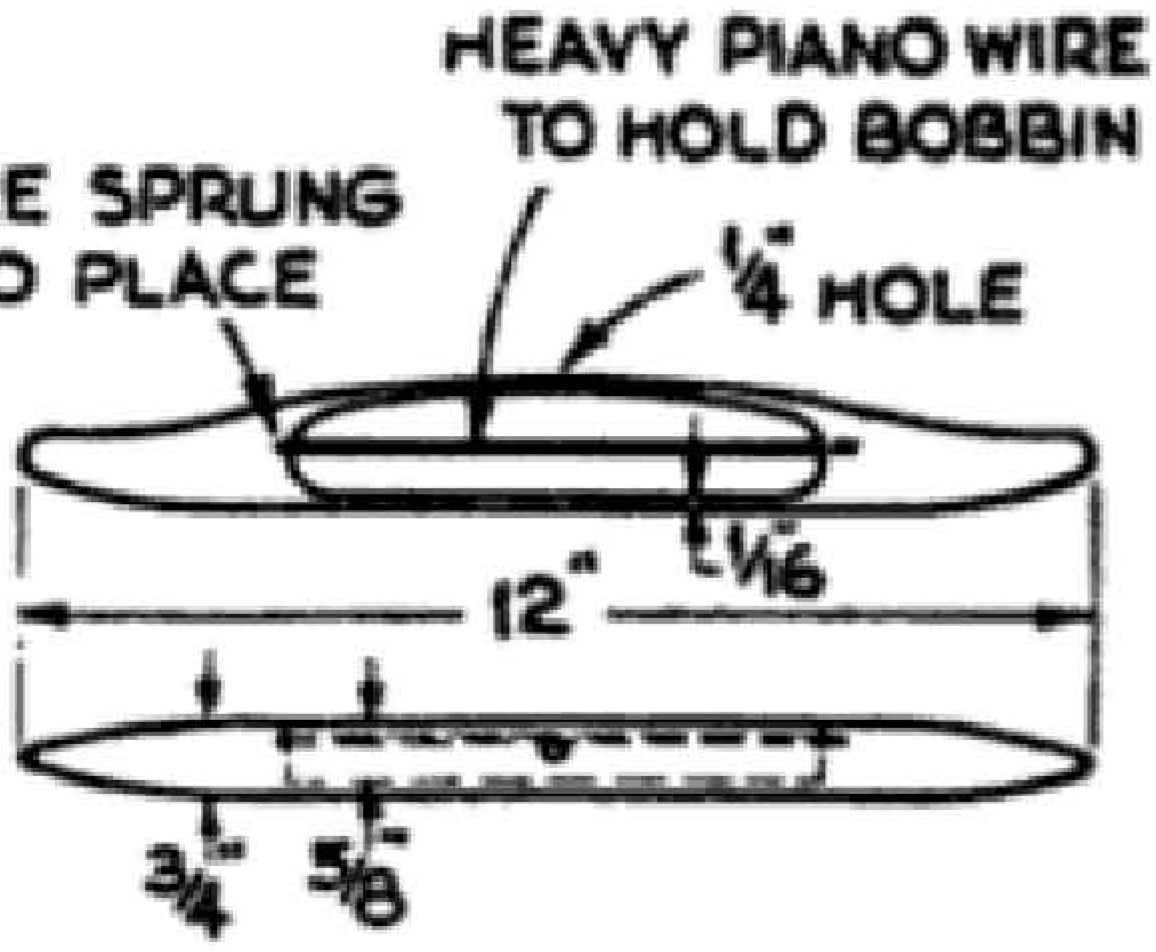
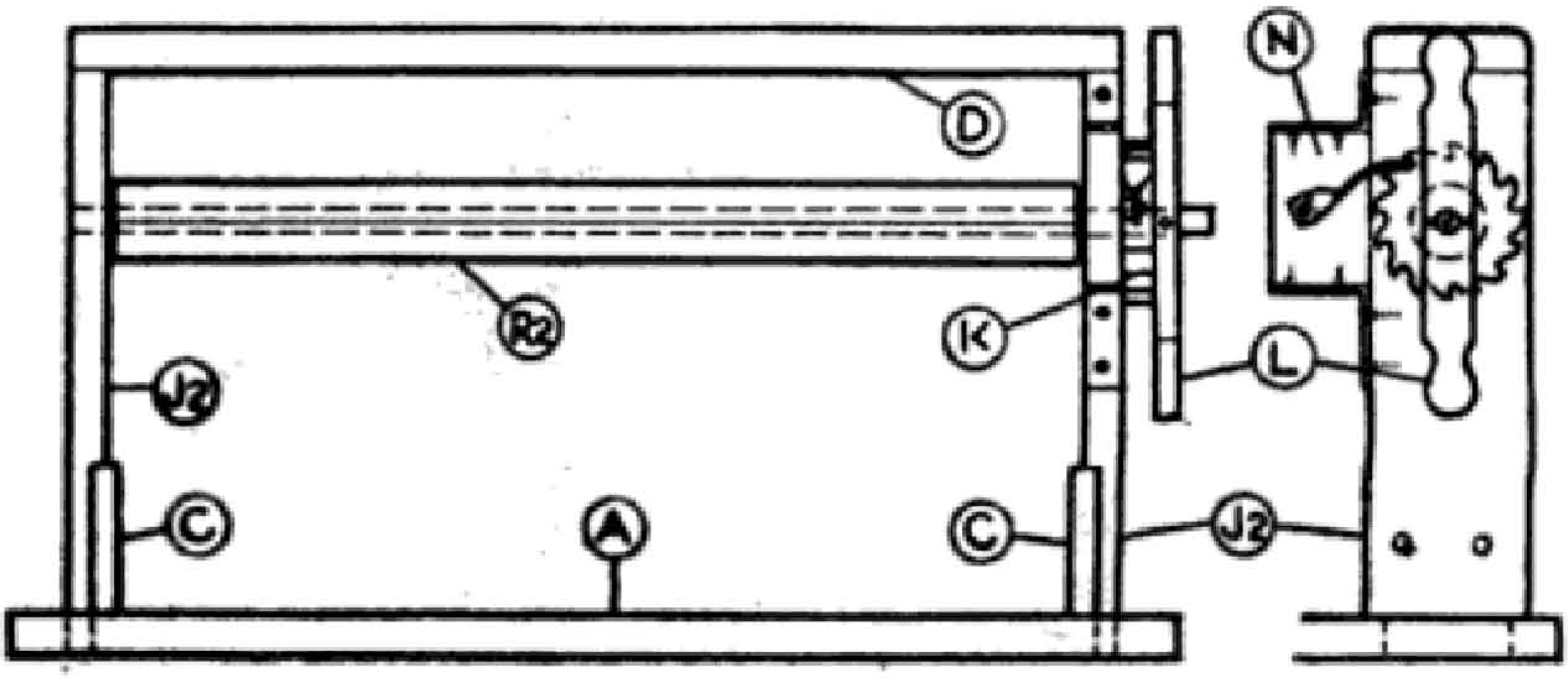




SWEDISH TYPE SHUTTLE



Detail at 4